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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,487	05/15/2001	Chun Hung Lin	4459-018A	8454

7590

12/18/2002

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,487

Applicant(s)

LIN

Examiner

Alexander O Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7 and 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Serial Number: 09/854487 Attorney's Docket #: 4459-018A

Filing Date: 5/15/01;

Applicant: Lin

Examiner: Alexander Williams

Applicant's Amendment In Paper # 7, filed 9/9/02, has been acknowledged.

Claims 1-3 and 8-10 have been cancelled.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following informalities: On page 7, line 10, "the photoresist layer 235" should probably be --the photoresist layer 250--.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4 to 7 and 11 to 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jung et al. (U.S. Patent # 6,342,730 B1) in view of Kweon et al. (U.S. Patent # 5,900,676).

For example, in claim 4, Jung et al. (**figure 2**) show a low-pin-count package comprising: a die pad **232** and a plurality of connection pads **230** arranged at the periphery of the die pad wherein the die pad and the connection pads have a concave profile; a first metal coating **240** on the upper surface of the die pad and the connection pads; a semiconductor chip **210** disposed on the die pad and electrically coupled to the connection pads; a package body **220** formed over the semiconductor chip and the connection pads in a manner that a portion of the die pad and a portion of each connection pad are at the outward portion from the bottom of the package body; and a second metal coating **252** in the lower surface of the die pad and the connection pads. Jung et al. fails to explicitly show a package body formed over the semiconductor chip and the connection pads in a manner that a portion of the die pad and a portion of each connection pad extend outward from the bottom of the package body

Kweon et al. is cited for showing a semiconductor device package structure having column leads. Specifically, Kweon et al. discloses (figures 1 to 45) specifically **figure 15** show a low-pin-count package comprising: a die pad **22** and a plurality of connection pads **24** arranged at the periphery of the die pad wherein the die pad and the connection pads have a extended portions; a first metal coating **40** on the upper surface of the die pad and the connection pads; a semiconductor chip **110** disposed on the die pad and electrically coupled to the connection pads; a package body **140** formed over the semiconductor chip and the connection pads in a manner that a portion of the die pad and a portion of each connection pad extend outward from the bottom of the package body; and a second metal coating **150** in the lower surface of the die pad and

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the connection pads for the purpose of making external electrical connections to the device.

Therefore, it would have been obvious to one of ordinary skill in the art to use Kweon et al.'s extended portions of the die pad and connection pads to modify Jung et al.'s die pad and connection pads for the purpose of making external electrical connections to the device.

Initially, it is noted that the 35 U.S.C. § 103 rejection based on a die pad, plurality of pads, a first metal coating and a second metal coating deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Therefore, it would have been obvious to one of ordinary skill in the art to use the die pad, plurality of pads, the first

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metal coating and the second metal coating as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claims 4, 6, 7, 11 and 13 to 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ooyama et al. (U.S. Patent # 6,191,494 B1).

For example, in claim 4, Ooyama et al. (figures 1A to 12) specifically figure 2H show a low-pin-count package comprising: a die pad (**first portion of 8**) and a plurality of connection pads (**first portion of 6**) arranged at the periphery of the die pad wherein the die pad and the connection pads have a concave profile; a first metal coating (**9, solder connection to the wire 4**) on the upper surface of the die pad and the connection pads; a semiconductor chip **2** disposed on the die pad and electrically coupled to the connection pads; a package body **1** formed over the semiconductor chip and the connection pads in a manner that a portion of the die pad and a portion of each connection pad extend outward from the bottom of the package body; and a second metal coating (**second portions of 6 and 8**) in the lower surface of the die pad and the connection pads.

Therefore, it would have been obvious to one of ordinary skill in the art to use the die pad, plurality of pads, the first metal coating and the second metal coating as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claims 4, 6, 7, 11 and 13 to 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Minamio et al. (U.S. Patent # 6,338,984 B2).

For example, in claim 4, Minamio et al. (figures 1 to 18c) specifically **figure 16** show a low-pin-count package comprising: a die pad (**first portion of 2**) and a plurality of connection pads (**first portion of 9**) arranged at the periphery of the die pad wherein the die pad and the connection pads have a concave profile; a first metal coating (**second portion of 9, 7**) on the upper surface of the die pad and the connection pads; a semiconductor chip **4** disposed on the die pad and electrically coupled (**by 5**) to the connection pads; a package body **6** formed over the semiconductor chip and the connection pads in a manner that a portion of the die pad and a portion of each connection pad extend outward from the bottom of the package body; and a second metal coating (**second portions of 2 and 9**) in the lower surface of the die pad and the connection pads.

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Therefore, it would have been obvious to one of ordinary skill in the art to use the die pad, plurality of pads, the first metal coating and the second metal coating as "merely a matter of obvious engineering choice" as set forth in the above case law.

Response

Applicant's arguments filed 9/9/02 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/666,698,696,692,693,684,676,676,712,713,717,729, 796,784,786,787	12/12/02
Other Documentation: foreign patents and literature in 257/666,698,696,692,693,684,676,676,712,713,717,729, 796,784,786,787	12/12/02
Electronic data base(s): U.S. Patents EAST	12/12/02

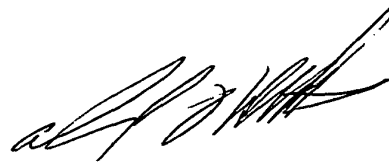
Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is ***(703) 308-4863***.

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Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center 2800 receptionist** whose telephone number is **(703) 308-0956**.

12/13/02

A handwritten signature in black ink, appearing to read 'A. O. Williams', written in a cursive style.

Primary Examiner
Alexander O. Williams